

WHAT IS CLAIMED IS:

1. A memory module, comprising:

5 a plurality of conductors, each of which have opposed first and second ends;

an integrated circuit coupled to the first end of each of the plurality of conductors;

and

10 a molded resin encasing the integrated circuit and having an outer surface on
which the second end of each of the plurality of conductors terminate in a
single row near an edge of the memory module.

2. The memory module as recited in claim 1, wherein the edge of the memory
15 module is adapted for slideable engagement into a receptor that is electrically connected
to an electronic system.

3. The memory module as recited in claim 2, wherein the second end of each of the
plurality of conductors are adapted for frictional engagement with, and electrical
20 connection to, conductive elements arranged within the receptors, during times when the
edge of the memory module is slid into the receptor.

4. The memory module as recited in claim 1, wherein the molded resin extends at
least partially around the integrated circuit to form an entire outer dimension of the
25 memory module.

5. The memory module as recited in claim 4, wherein the entire outer dimension of
the memory module is of equivalent size to a memory card.

6. The memory module as recited in claim 4, wherein memory module is mechanically and electrically interchangeable with a memory card.

7. The memory module as recited in claim 4, wherein the entire outer dimension of the memory module except for the second end of each of the plurality of conductors is surrounded by a covering that employs a mechanical tab which, when actuated, prevents writing data to the integrated circuit.

8. The memory module as recited in claim 4, wherein a surface of the integrated circuit is bonded to a surface of a conductive plate, the opposite surface of the conductive plate extends flush with or beyond the outer dimension of the memory module.

9. The memory module as recited in claim 8, wherein the plate is thermally conductive.

10. The memory module as recited in claim 1, wherein the integrated circuit comprises memory and a memory controller embodied upon a single monolithic silicon substrate.

11. The memory module as recited in claim 1, further comprising wires extending between a plurality of bonding pads on the integrated circuit and the first end of each of the plurality of conductors.

12. The memory module as recited in claim 1, further comprising solder extending between a plurality of bonding pads on the integrated circuit and the first end of each of the plurality of conductors.

13. The memory module as recited in claim 1, further comprising a second integrated circuit stacked upon and bonded to the integrated circuit.

14. The memory module as recited in claim 1, wherein the plurality of conductors comprise flattened metal strips attributed to lead frame or a tape mounted upon a Tape Automated Bonding (TAB) device.

5 15. A lead frame comprising a first portion spaced from a second portion, wherein the first portion is configured to receive an integrated circuit, and wherein the second portion is a conductor extending along a first plane co-planar to the first portion downward to a second plane on which a surface of the conductor is adapted to releasably secure against a receptor.

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16. The lead frame as recited in claim 15, further comprising a memory module that encases the lead frame and the integrated circuit and extends to a surface co-planar with the second plane.

15 17. The lead frame as recited in claim 15, further comprising a molded resin that completely surrounds the integrated circuit and the first and second portions, except for the surface of the conductor that is adapted to releasably secure against the receptor.

18. The lead frame as recited in claim 15, wherein the surface of the conductor
20 extending to the second plane is exposed along an edge of the memory module.

19. The lead frame as recited in claim 15, wherein an upper surface of the first portion is bonded to a lower surface of the integrated circuit.

25 20. The lead frame as recited in claim 15, wherein the conductor is coupled to a bonding pad arranged upon an upper surface of the integrated circuit.

21. A method for forming a memory module, comprising:

coupling an integrated circuit to at least one of a plurality of conductors extending
in a single direction laterally from the integrated circuit along two planes
substantially parallel with a plane formed by the integrated circuit;

securing the plurality of conductors between a pair of mold housings, each of
which have a cavity that surrounds opposed surfaces of the integrated
circuit absent any structure between the coupled integrated circuit and the
pair of mold housings; and

inserting resin between the pair of mold housings.

22. The method as recited in claim 21, wherein said coupling comprises ultrasonic or
thermosonic bonding a wire between the integrated circuit and said at least one of the
plurality of conductors.

23. The method as recited in claim 21, wherein said coupling comprises Tape
Automated Bonding (TAB) said at least one of the plurality of conductors to at least one
bonding pad upon the integrated circuit.

24. The method as recited in claim 21, wherein said coupling further comprises
mounting another integrated circuit offset upon an upper surface of the integrated circuit
to expose a set of bonding pads on the integrated circuit to the plurality of conductors.

25. The method as recited in claim 24, wherein said mounting further comprises
coupling said another integrated circuit to at least one of the plurality of conductors.

26. The method as recited in claim 21, wherein said securing comprises suspending the integrated circuit within an air-filled space formed by the cavity of each of the mold housings by clamping the plurality of conductors between the pair of mold housings a spaced distance from the cavity.

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27. The method as recited in claim 21, wherein said inserting resin comprises flowing the resin in liquid form into an air-filled space formed by the cavity of each of the mold housings and then allowing the resin to harden.

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